

SECTION III.

EMERGENCY PROCEDURES

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INTRODUCTION

This section provides the recommended procedures to follow during adverse flight conditions. The information is presented to enable you to form, in advance, a definite plan of action for coping with the most probable emergency situations which could occur in the operation of your airplane.

As it is not possible to have a procedure for all types of emergencies that may occur, it is the pilot's responsibility to use sound judgement based on experience and knowledge of the aircraft to determine the best course of action. Therefore, it is considered mandatory that the pilot read the entire manual, especially this section before flight.

When applicable, emergency procedures associated with optional equipment such as autopilots are included in Section IX.

NOTE

All airspeeds in this section are indicated (IAS) and assume zero instrument error unless stated otherwise.

ANNUNCIATOR PANEL WARNING LIGHTS

<u>Warning Light</u>	<u>Fault & Remedy</u>
Gear Unsafe	Landing gear is not in fully extended or retracted position. Refer to "Failure of landing gear to extend electrically" procedure on page 3-9 or "Failure of landing gear to retract after takeoff" procedure on page 3-10.
Left or Right Fuel Low	2 1/2 to 3 gallons of fuel remain in the respective tanks. Switch to fuller tank.
VAC (Flashing)	Suction is below 4.25 inches of mercury.
VAC (Steady)	Suction is above 5.5 inches of mercury. Attitude and directional gyros are unreliable. Vacuum system should be checked and/or adjusted as soon as practicable.
Volts (Flashing)	Low voltage. Refer to "Alternator Low Voltage" on page 3-8.
Volts (Steady)	Overvoltage or tripping of voltage relay. Refer to "Alternator Power Loss" on page 3-8.
Ram Air	Ram air is on (when landing gear extended); close before landing.
Starter Engaged	Switch or relay has malfunctioned and starter is energized. Flight should be terminated as soon as practical. Engine damage may result.

ENGINE

POWER LOSS - DURING TAKEOFF ROLL

1. Throttle - CLOSED.
2. Braking - Maximum.
3. Fuel Selector - OFF.
4. Master and Magneto/Starter Switch - OFF.

POWER LOSS - AFTER LIFTOFF AND DURING CLIMB

1. Lower Nose, Establish Best Glide Speed.
2. Fuel Selector - Select Other Tank.
3. Electric Fuel Boost Pump - ON.
4. Mixture Control - FULL RICH.
5. Magneto/Start Switch - CHECK ON BOTH.
6. Propeller - High RPM.
7. Throttle - Full Forward.

If engine does not restart, proceed to POWER OFF landing, page 3-7.

ROUGH ENGINE OR LOSS OF POWER IN FLIGHT

Immediately upon noting any condition that could eventually lead to an engine failure (loss of oil or fuel system pressure, or rough engine operation), perform the following checks if time and altitude permit.

1. Low Fuel Quantity - FUEL SELECTOR TO FULLEST TANK.
2. Low Fuel Pressure - AUX. FUEL PUMP ON - OFF IF NO IMPROVEMENT NOTED.
3. Mixture Control - FULL RICH.
4. Magneto/Starter Switch - Switch to left and right single magneto operation; if no improvement, switch to BOTH.

If no improvement is noted, proceed to land as soon as practicable.

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AIR START PROCEDURE

1. Propeller - High RPM (Full Forward).
2. Fuel Selector - Fuller Tank.
3. Mixture Control - Idle Cutoff (Full Aft) Initially.
4. Fuel Pressure - Check. If no fuel pressure is noted, turn electric fuel boost pump ON.
5. Throttle - Open 1/4 Travel.
6. Magneto/Starter Switch-Both.
7. Mixture Control - Move slowly and smoothly toward FULL RICH (Forward).
8. Re-establish cruise power and RPM - then lean mixture as required.

If engine fails to start establish best glide speed then proceed to POWER OFF LANDING, page 3-7.

SMOKE AND FIRE

ENGINE FIRE - GROUND

1. Mixture - Idle Cutoff (Full Aft).
2. Fuel Selector Valve Off.
3. Master Switch - Off.
4. Magneto/Starter Switch - Off.
5. Extinguish with Fire Extinguisher.

ENGINE FIRE - IN FLIGHT

1. Fuel Selector Valve - OFF.
2. Throttle - Closed (Full Aft).
3. Mixture Control - IDLE CUTOFF (Full Aft).
4. Magneto/Starter Switch - Off.
5. Cabin Ventilation & Heating Controls - CLOSED. (Control Forward)
6. Landing Gear - DOWN OR UP, depending on terrain.
7. Wing Flaps - EXTEND. As Necessary.

NOTE

If fire is not extinguished, attempt to increase airflow over the engine by increasing glide speed and open cowl flaps. Plan a power off landing as described in this section. Do not attempt an engine restart.

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ELECTRICAL FIRE IN FLIGHT

(Smoke in Cabin)

1. Master Switch - OFF.



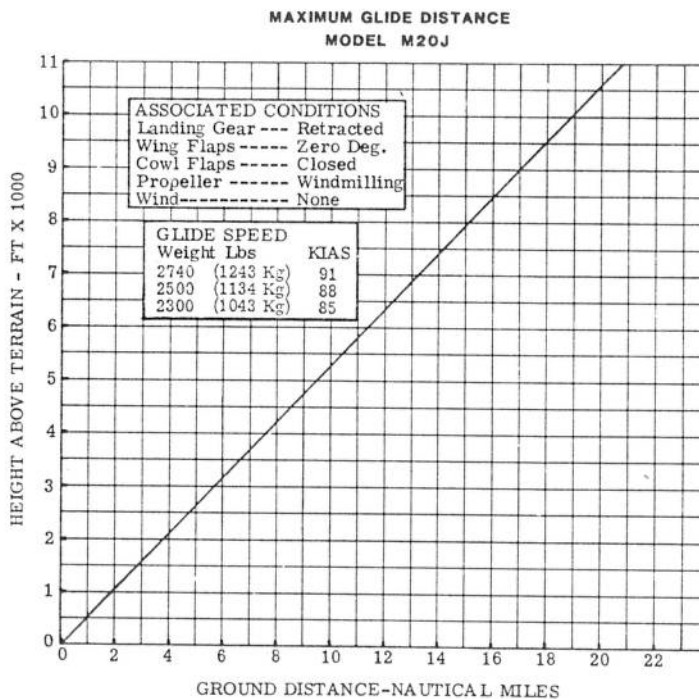
Stall warning is not available with master switch OFF.
Gear warning is not available with master switch OFF.

2. Cabin Ventilation - Open
3. Heating Controls - Closed (Control Forward)
4. Circuit Breakers - CHECK. To identify faulty circuit if possible.
5. Land as soon as practicable.

If electrical power is essential for the flight, attempt to identify and isolate the faulty circuit as follows:

1. Master Switch - ON.
2. Select essential switches ON one at a time, and permit a short time to elapse before activating an additional circuit.

GLIDE



LANDING EMERGENCY

POWER OFF - GEAR RETRACTED OR EXTENDED

If an engine failure occurs, prepare for a landing as follows:

1. Emergency Locator Transmitter - ARMED.
2. Seat Belts and Shoulder Harnesses - SECURE.
3. Cabin Door - UNLATCHED.
4. Mixture Control - IDLE CUTOFF (Full Aft).
5. Fuel Selector Valve - OFF.
6. Magneto/Starter Switch - Off.
7. Wing Flaps - FULL DOWN (33°).
8. Landing Gear - Down or Up depending on terrain.
9. Approach speed - 71 KIAS.
10. Master Switch - OFF.

POWER ON - GEAR RETRACTED

If possible, choose firm sod, or foamed runway.

1. Emergency Locator Transmitter - ARMED.
2. Seat Belts and Shoulder Harness - SECURE.
3. Cabin Door - UNLATCHED.
4. When sure of making landing area:
 - a. Fuel Selector - OFF.
 - b. Throttle - CLOSED.
 - c. Mixture - IDLE CUTOFF.
 - d. Magneto/Starter Switch - OFF.
 - e. Flaps - Full Down (33°)
 - f. Master Switch - OFF.
 - g. Approach Speed - As Slow As Possible.
 - h. Wings - Level at Touchdown.

SYSTEMS EMERGENCIES

PROPELLER

PROPELLER OVERSPEED

1. Throttle - RETARD.
2. Oil Pressure - CHECK.
3. Propeller - DECREASE, set if any control available.
4. Airspeed - REDUCE.
5. Throttle - AS REQUIRED to maintain RPM below 2700 RPM.

FUEL

LOW FUEL FLOW

1. Check mixture - ENRICH.
2. Fuel Selector - FULLEST TANK.
3. If condition persists, use Boost Pump if necessary and landing should be made as soon as practicable.

ELECTRICAL

ALTERNATOR FAILURE - (Voltage Warning Light Illuminated)

1. Radio Master - OFF.
2. Master Switch - OFF, Then ON.

If Warning Light is still illuminated, the following steps are required:

3. Alternator Field Circuit Breaker - PULL.
4. Non-Essential Electrical Equipment - OFF.
5. Land As Soon As Practicable.

ALTERNATOR LOW VOLTAGE (Voltage Warning Light Flashing)

1. Alternator Field Circuit Breaker - RESET ONCE.

If Warning Light is still Flashing:

2. Alternator Field Circuit Breaker - PULL.
3. Non-Essential Electrical Equipment - OFF.
4. Land As Soon As Practicable.

NOTE

A tripped main alternator circuit breaker can only be caused by a shorted alternator circuit and cannot be corrected by resetting the breaker. This should be verified by attempting to reset the breaker not more than one time. If this fails, pull the alternator field breaker, turn off all non-essential electrical equipment and terminate the flight as soon as practical.

LANDING GEAR

Failure Of Landing Gear To Extend Electrically.

1. Airspeed - 132 KIAS or less.
2. Landing Gear Actuator Circuit Breaker - PULL.
3. Gear Switch - DOWN.
4. Manual Gear Extension Mechanism - LATCH FORWARD, LEVER BACK.

NOTE

Slowly pull "T" handle 1 to 2 inches (2.5 to 5.1 cm) to rotate clutch mechanism and allow it to engage drive shaft.

5. T-handle - PULL (12 to 20 inches) and RETURN until gear is down and locked, GEAR DOWN light ILLUMINATED (12 to 20 pulls).
6. Visual Gear - Down Indicator - Check alignment by viewing from directly above the indicator.

CAUTION

Malfunction of landing gear requires maintenance inspection and repair prior to activating electrical system.

7. Return lever to normal position and secure with latch.
8. Reset Landing Gear Actuator Circuit Breaker.

WARNING

Do not operate landing gear electrically with manual extension system engaged.

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FAILURE TO RETRACT

("GR Safety By Pass" and both gear annunciator lights illuminated, gear warning horn activated).

1. "GR SAFETY BY PASS" Switch - DEPRESS until gear fully retracted.
2. "GEAR UNSAFE" and "GEAR DOWN" Lights - OUT.
3. "GEAR CONT." Circuit Breaker - PULL (Warning horn off).
4. Gear Extension - RESET "Gear Cont." Circuit Breaker.
5. Gear Switch - DOWN.
6. Check "AIRSPEED " safety switch as soon as practicable.

NOTE

If above procedures do not initiate retraction process, check emergency manual extension lever on floor for proper position.

UNLATCHED DOOR IN FLIGHT

If the cabin door is not locked it may come unlatched in flight. This may occur during or just after take-off. The door will trail in a position approximately 3 inches (7.6 cm) open, but the flight characteristics of the airplane will not be affected. Return to the field in a normal manner. If practicable, during the landing flare-out have a passenger hold the door to prevent it from swinging open.

If it deemed impractical to return and land, the door can be closed in flight, after reaching a safe altitude, by the following procedures:

1. Slow to approximately 95 KIAS.
2. Open the storm window to reduce cabin air pressure.
3. Bank to the right.
4. Simultaneously apply left rudder (which will result in a right slip) and close the door.

OXYGEN

Refer to Section IX if aircraft is equipped with oxygen.

ICE PROTECTION

DO NOT OPERATE IN KNOWN ICING CONDITIONS.

If icing conditions are inadvertently encountered:

1. Turn OFF ram air. Do not turn ram air on again when entering clear air until assured all ice and snow has melted from the aircraft.
2. Shut cabin heat OFF until engine operation is normal.
3. Push ON pitot heat. (If installed)
4. Pull static air source to ALTERNATE (If installed).
5. Turn back or change altitude to obtain an outside air temperature less conducive to icing.

ALTERNATE STATIC SOURCE

The alternate static air source should be used whenever it is suspected that the normal static air sources are blocked. Selecting the alternate position changes the source of static air for the altimeter, airspeed indicator and rate-of-climb from the outside of the aircraft to the cabin interior.

When the alternate static air source is in use adjust the indicated airspeed and altimeter readings according to the appropriate alternate static source airspeed and altimeter calibration tables in Section V.

The static air source valve is located in the lower left portion of the pilot's flight panel above the pilot's left knee.

EMERGENCY EXIT OF AIRCRAFT

1. Cabin Door
 - a. Pull latch handle aft.
 - b. Open door and exit aircraft.
2. Baggage Compartment Door.
 - a. Fold rear seat backs forward, climb over.
 - b. Pull plastic cover off.
 - c. Pull white knob.
 - d. Lift up red handle.
 - e. Open door and exit aircraft.
 - f. To re-engage outside latch - open outside latch fully, close inside red latch to engage pin in cam slide of outside latch, push in on white button until it snaps in place. Replace cover.
 - g. Operate outside latch in normal manner.

SPINS



Up to 2000 feet of altitude may be lost in a one turn spin and recovery; therefore, stalls at low altitude are extremely critical.

NOTE

The best spin recovery technique is to avoid flight conditions conducive to spin entry. Low speed flight near stall should be approached with caution and excessive flight control movements in this flight regime should be avoided. Should an unintentional stall occur the aircraft should not be allowed to progress into a deep stall. Fast, but smooth stall recovery will minimize the risk of progressing into a spin. If an unusual post stall attitude develops and results in a spin, quick application of anti-spin procedures should shorten the recovery.

INTENTIONAL SPINS ARE PROHIBITED. In the event of an inadvertent spin, the following recovery procedure should be used:

1. Rudder - Apply FULL RUDDER opposite the direction of spin.
2. Control Wheel - FORWARD of neutral in a brisk motion. Additional FORWARD elevator control may be required if the rotation does not stop.
3. Ailerons - NEUTRAL.
4. Throttle - RETARD TO IDLE.

Hold anti-spin controls until rotation stops:

5. Flaps - If extended, RETRACT as soon as possible.
6. Rudder - NEUTRALIZE.
7. Control Wheel - Smoothly move aft to bring the nose up to a level flight attitude.

OTHER EMERGENCIES

Refer to Section IX for Emergency Procedures of Optional Equipment.